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10/058,621	01/29/2002	Robert E. Warburton	02-135	3430

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EXAMINER

DUONG, THO V

ART UNIT PAPER NUMBER

3743

DATE MAILED: 02/11/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,621

Applicant(s)

WARBURTON ET AL.

Examiner

Tho v Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 12, 13, 27, 28, 33, 34 and 36 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 and 32 is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 14-20, 23-26, 30, 31, 35 and 37-40 is/are rejected.
- 7) ☒ Claim(s) 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-11, 14-26, 29-32 and 35 have been considered but are moot in view of the new ground(s) of rejection.

Election/Restrictions

In view of the applicant's argument regarding the restriction requirement of group I, claims 1-36 and group II, claims 37-40, the examiner found the argument persuasive. Therefore, the restriction requirement has been withdrawn. However, the election of species requirement is still proper since the basis for the election of species is that the species are patentably distinct. Claims 12-13, 27-28, 33-34 and 36 are still withdrawn from further consideration.

The requirement of election of species is still deemed proper and is therefore made Final.

Claims 1-40 are pending; claims 12-13, 27-28, 33-34 and 36 are withdrawn from further consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As regarding claim 1, the claimed subject matter of "said fluid containment device not being attached to either of said first and second panels" renders the scope of the claim indefinite since it appears in the drawing (figures 1, 4 and 5) that the fluid containment device is still attached to the panels. Applicant's argument that the word "attached"

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as used in the claim has nothing to do with whether the panels are in contact with the containment device. Applicant is reminded that the word “attached” is not defined in the specification; the claimed subject matter is only described in the specification as “the fluid containment device 16 is not fastened to either panel 12 or panel 14 in any manner. Rather it is merely sandwiched between the panels 12 and 14” (page 4, lines 3-6). According to Merriam Webster’s Collegiate Dictionary 10th Edition, the word “attach” can be defined as “to bring into an association” which includes physical contact. Therefore, the expression “attached” should be revised to set forth clearly the intended invention accordingly with the original disclosure.

Claims 1-11 and 31 are further subject for examination as can be best understood by the examiner that the fluid containment device is not fasten to either the panel.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Glass et al. (US 5,720,339). Glass discloses (figures 2 and 6) a heat exchanger panel comprising a first panel (corrugated portion or top portion of composite material (11)) and a second panel (flat or bottom portion of composite material (11)); and a pipe (12,40) being sandwiched between the first and second panel wherein the pipe (12,40) is not fastened to either of the first panel and the second panel. Glass further discloses (column 13, lines 32-34) that the composite material is selected from a group of material consisting of carbon/carbon and carbon/silicon.

Claims 14-17,24,30 and 31 are rejected under 35 U.S.C. 102(a) as being anticipated by Schmidt et al. (US 6,182,442). Schmidt discloses (figure 1) a wall system for use in a rocket combustion chamber comprising a heat exchanger panel comprising an outer panel (1) and an inner panel (flat bottom part of (2)) which are all formed from a group consisting of a carbon/carbon composite material and carbon/silicon carbide composite material; a fluid containment device includes upright partition walls protrude from the second panel, being sandwiched between the first and the second panels; a composite fastener (5) for joining the first panel to the second panel; each of the panel comprising a leading edge and an trailing edge (two opposite edges in longitudinal axis). Schmidt further discloses (figure 1) that the coolant containment device comprises a plurality of tubular passageways (4) extending parallel to a longitudinal axis of the panel system and being spaced apart by a plurality of spacers.

Claims 1,6,9,10,11,14,15,17,18,19,20,24,30,31 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Wittel (US 4,583,583). Wittel discloses (figure 2-6) a heat exchanger panel comprising a first (inner) panel and a second (outer) panel (41) formed from a high temperature composite material; and a plurality of tubes (90) sandwiched between the first and second panel; the fluid tubes not being fastened to either of the first and second panels; each first and second panels having a plurality of arched portions (43) to accommodate the fluid containment device. Wittel further discloses (column 14, lines 28-33) a composite fastener such as a bonding film of polyether-sulfone for joining the first and second panel (41). As regarding claims 9,19 and 20, Wittel further discloses (column 7, lines 37-39) that a substructure of a gas distribution plate (20) is secured to the panels. Since the inner panel and the outer panel are already secured together, the securing of either the panel to the substructure will secure the other

panel to the substructure as well. As regarding the preamble, the recitation “for use in a propulsion system” has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa V. Robie*, 88 USPQ 478 (CCPA 1951).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Stanley D. Butler (US 3,630,449). Schmidt substantially discloses all of applicant’s claimed invention as discussed above except for the limitation that the wall system comprising a plurality of heat exchanger panels and the panels being aligned along a longitudinal axis of the wall system. Butler discloses (figures 1,10 and column 1, lines 32-40) a wall system for a nozzle and throat section of the rocket engine comprises of a plurality of heat exchanger panels (13) wherein the heat exchanger panels (13) being aligned along a longitudinal axis (along longitudinal edge of each panel) of the wall system for the purpose of improving the accessibility of the nozzle and throat portions of the engine. Since Schmidt and Butler are both from the same field of endeavor

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and/or analogous art, the purpose disclosed by Butler would have been recognized in the pertinent art of Schmidt. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Butler's teaching in Schmidt's system to improve the accessibility of the nozzle and throat portions of the engine.

Claim 25 is rejected under 35 U.S.C. 103(a) as obvious over Schmidt et al. Schmidt discloses (figure 4 and column 6, lines 4-11) that the wall (W) is forming a combustion chamber (8) with the present of a fuel injectors (which is not shown). It is well known in the art that a combustion chamber is a place where the fuel is ignited and combusted. Therefore, the a means such as fuel injector is needed to inject fuel into the combustion chamber is inherently. (See Denison Jr. 2,968,918)

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (US 6,182,442) in view of Glass et al. (US 5,720,339). Schmidt substantially discloses all of applicant claimed invention as discussed above except for the limitation that the wall system comprises a scramjet engine.

Schmidt discloses (column 9, lines 5-8) that the cooling wall system can be used at the thrust nozzle in many applications such as booster rocket engine and other reusable high power engines. Glass discloses (figure 2 and column 14, lines 54-56) a cooling wall system formed at the thrust nozzle of the rocket engines or a scramjet to cool the throat or nozzle section of the rocket engines or a scramjet engine. Since Schmidt and Glass are both the same field of endeavor and/or analogous art, the purpose disclosed to cool the nozzle section of the scramjet engine would have recognized in the pertinent art of Schmidth. It would have been obvious to

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one having ordinary skill in the art at the time the invention was made to use Glass's teaching in Schmidt's system for the purpose of cooling the nozzle section of the Scramjet engine.

Claims 19-26 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of F. G. Denison Jr. (US 2,968,918). Schmidt substantially disclose all of applicant's claimed invention as discussed above except for the limitations of a means for fastening the panel to a substructure and a means for injecting fuel into a space bounded by the heat exchange panel system. F. G. Denison discloses (figures 1 and 5) a wall system for used in a rocket engine comprising a heat exchange panel wherein a substructure (31) is fastened to the outer panel by a fasten means for the purpose of attaching a manifold to the heat exchange panel to supply a coolant into the fluid containment device. Since the inner panel and the outer panel are already secured together, the securing of either the panel to the substructure will secure the other panel to the substructure as well.

Denison further discloses (figure 4) a fuel injector means (5) which comprises a fuel inlet conduit (42a), a manifold (43) connected to the fluid inlet conduit, and a plurality of injection nozzles (45) for the purpose of injecting fuel into the combustion chamber.

Since Schmidt and Denison are both from the same field of endeavor and/or analogous art, the purpose disclosed by Denison would have been recognized in the pertinent art of Schmidt. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ in Schmidt a manifold and a fuel injector means for the purpose of supplying a cooling into the fluid containment device and injecting fuel into the combustion chamber.

Allowable Subject Matter

Claims 29 and 32 are allowed.

Claims 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7-8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vidal et al. (US 6,397,581) discloses a heat exchanger in composite material.

Fluegel (US 5,423,498) discloses a modular liquid skin heat exchanger.

Carl-Helmut Dederer et al. (US 3,692,637) discloses a method of fabricating a hollow structure having cooling channels.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



TD

February 8, 2004



Tho Duong

Patent Examiner.